

right. For although German students were vastly better prepared than many of the half-baked youths who are passed through American high schools, there were not jobs in Germany for so many highly educated men.

One of our troubles is that our school teachers are not sufficiently paid. Another is that many teachers are afraid not to pass dull or lazy boys and girls. There is "politics" in the schools, and teachers are afraid of losing their jobs if they maintain proper standards and refuse to pass the children of people with "pull."

I have heard this opinion frequently expressed, and believe that a courageous Governor could do much to correct the evil if he took the stump and fought it. Moreover, I believe that a resolute struggle would win in the end. The average American is not foolish enough to insist upon being taxed in order that crowds of young people may have a "good time" at high school and college.

One curse of American life is the subordination of quality to quantity. Our educational system would be much better if there were fewer but better schools and colleges, fewer but better paid teachers in the schools, fewer but better paid professors in the universities, with only half the number of students. . . .

## THE PLACE OF THOROUGHNESS IN TEACHING

**T**HOROUGHNESS in learning means first of all an interested learner. The thorough teacher must know how to use the child's natural curiosity and also how to encourage an eager desire to know. She must be skilled in guiding a discussion. She must be able to stir up the minds of the children. She must be genuinely interested in knowledge and mental activity. She should provide a richness of subject matter. This subject matter should be so well mastered that her mind is not

burdened with recalling it as she leads the discussion. Simple illustrations and simple experiments as well as pictures and books easy enough for children to read should be at her command. She should speak in words children can understand. If the children sense a natural atmosphere, they will do much of the questioning, but the teacher must know the art of questioning. Her questions should help the child use what he already knows to deal with a new problem and they should also help the child see meaning in the material that is present. The teacher's questions should keep the children talking to the point, keep the thinking moving forward toward the solution of the problem in hand, and summarize the work covered.

For example, a fifth-grade class, accustomed to hearing the weather report read daily, became more and more interested in the topic "Weather." One child wanted to know one day how we could have such warm days in winter. The group at once became interested in the question. To get some understanding of this weather phenomenon, the children found it necessary to study the cause of winds. A group of seven children particularly interested in the subject volunteered to read the chapter called "How Air Becomes Wind" from the book *The Earth and Living Things* (Craig and Hurley) and find out about the cause of winds. Directions for setting up a few simple experiments were given in the chapter. One experiment the group used was to show how warm air rises and how cool air rushes in to take its place.<sup>1</sup> When all of the class thoroughly understood the experiment and the diagram, they were able to make some statements as to the cause of wind. The questions which the teacher was prepared to ask in this study were: Can you tell what happened to cause smoke to go up one chimney and down the other? Explain

<sup>1</sup>This experiment is described in Craig and Hurley's *The Earth and Living Things*, p. 113. (Ginn & Co.). The diagram on page 117 was also used.



the diagram—Does this help you to see what causes wind? Because the children lived in a valley, they were also eager to learn about mountain and valley breezes. They read from Reh's *Water, Air and Sound*, pages 89 and 90, on "Wind." The class was led to see that there was much more to be learned about winds later.

But the leader of the discussions has not yet done all that should be done; she must not only make the children want to know but must also give them a way of finding out. This means the children must be taught to use reference material skillfully. And after the study is completed they should still want to know more about the subject.

Not only must a teacher know the art of questioning if she is skilled in conducting a discussion; she must know, as well, the art of directing a pleasant conversation. The children should listen politely and form an opinion of what is being said. They should do their share of contributing and should know how to make themselves heard and understood.

In the work period children choose their own tasks and make their own plans as to how the tasks shall be done. Certain it is that very often the teacher has to guide the child in his selection of a job. He must have a job and a worth-while one. If the teacher does all that she should do, she first provides a variety of suitable materials and tools for the class. There should be tools and materials for wood work, clay work, tin can articles, drawing, sewing; and there should also be batteries, doorbells, magnets, etc., for experiments. These materials should be the kind that children can work with happily and effectively, such as soft wood for whittling and for most woodwork. Children beginning new work should be given some opportunity to investigate and try out various materials. Often a tour of exploration about the room will give the child an idea as to what he can and would like to do. If there is a variety of materials

and appropriate tools, each child should be able to follow his own natural inclinations when starting a job. Once a child has decided upon what he is going to do, there should be no turning aside from the task. He should have a **definite plan** in mind and should proceed with no unnecessary waste of time, effort, or materials. If the teacher in charge discovers that some youngster habitually proceeds without any plan, or only a very vague one, she should check him constantly and through conferences with him she may even write out his plans as he gives them, or have him write them himself. If a child has chosen his own task, ordinarily he will proceed with little or no waste of time. To put it another way, if he is interested in his work he will usually give all of his attention to the task over the period of time needed to finish it. There may be instances, however, when a child may want to discontinue work on a job which he started with great zeal. There are several possible causes for such an occurrence. The teacher may have permitted him to start on a task too difficult for his particular level of maturity or the materials he is working with may be unsuitable. Or he may have met with too much discouragement in searching for needed materials. Then, too, there may be a child who has never had the experience of really giving all of his attention to a task. Whatever the cause, the teacher should find it and apply the right remedy. With only rare exceptions, once a job is started it should be carried to successful completion. It should be the best job that child can do.

If a child is satisfied with something short of his best he needs definite guidance in building an ideal of thoroughness. This may be done by showing him how he has come short of his best. Perhaps the question: How could you have done this in a better way?—would bring the desired response. Encouragement—showing him where any improvement is being made—should help. New information may be all



that is needed to get a better type of work from the child.

If work periods are well directed, the child should be learning about how to live pleasantly with others; how to work efficiently; how to control themselves; and how to accept responsibility. If he is not willing to share materials and if he doesn't care for them properly, he isn't learning co-operation and responsibility. If he is noisy and rude, he isn't learning self control. At no time should he stand in the way of his own progress or that of others. Thoroughness in guiding a Work Period means a teacher constantly alert to the needs and actions of her group, and ready to give help wisely.

The Work Periods and the Discussion Periods seem to be the most important periods of the day because in these two periods group plans are made, the children's interests and needs are discovered, self-control and self-direction is practiced, a sense of responsibility is developed, thinking is clarified and organized, intellectual curiosity is aroused, and the children are taught to live with others. But there must be other periods in the day if all their needs and interests are taken care of. Certain skills must be developed. Definite practice is needed. Research work must be done. There must be carefully directed training in arithmetic, reading, writing, language, word study, literature, and the fine arts. First of all, the child must see the need for practice, or the reason for the research work, and he must enjoy to appreciate. This need may be felt by him because of a problem he has met in a course of action or because the teacher has made him aware of the need.

For example, Harry found on the bookshelves in his own room a book telling how to make tin can toys. He began to leaf through it and found the picture of a steam roller he wanted to make. His first thought was to get tin cans. Then he went to work. He had been working only a short while when he found that the cans were too dirty

to use. The problem of how to clean them had to be met. The teacher helped him read directions for cleaning cans. This reading meant real effort on his part as well as some much needed practice. When he found that he must measure the lye and water before heating, he was up against another problem. So much lye to a gallon was all he was told. He didn't have that much lye, so he had to figure to make the water match the quantity of lye which he had. Then he had to read directions for preparing lye solution. Later he met the problem of making rollers run true. When the time came for soldering, directions for preparing soldering copper and using solder had to be studied. These are a few of the problems which one child met in doing one job.

In some instances his teacher has to make him aware of his need, this time reading to find how to prepare soldering copper for use. Several times Harry called on the class for help. This shows how there must be skill in reading and arithmetic to carry on a task in a Work Period. Often skills other than those in reading and arithmetic are needed. Harry saw meaning in the arithmetic and reading, and because the practice had meaning to him, he gave careful attention to his practice throughout the time used. This is thorough practice.

In handling money an entire class saw the need for arithmetic as a result of their Work Period. Often materials have to be bought and money must be raised and wisely spent. An account of collecting and spending must be regularly kept. Adding, subtracting, dividing and multiplying of integers and fractions are often involved.

Some members of a fifth-grade class wanted to draw some snow scenes for the Bulletin board during Work Period. They found they were out of drawing paper. It had to be bought. What was the best buy? It was decided to get a large package for the whole class, since this seemed the cheapest way to buy. The children got the package and immediately wanted to know how



many sheets were in it and how many sheets each child in the room would be entitled to. This meant doing long division. Some members of the group had sufficient experiential background and were mentally mature enough for the long division. They were aware of need and began practicing so as to be ready to meet further long division problems. To have forced practice on those who were not mature enough would have meant for them practice that was far from thorough. The immature pupils would have been unable to give all of their attention to the practice.

Over and over again children need arithmetic to help them think clearly during a discussion. A member of a fifth grade had to travel by car from Virginia to Nebraska. A friend said it would take six days to go and return. One child asked how far it was to Nebraska. Another said, "We can find out." The first child asked how. The answer by the class was, of course: "Use the scale of miles." This child then had to be helped to use it. He learned that each inch on the wall map before him represented one hundred and fifteen miles and that it was fourteen and one-half inches to Nebraska. Then he said that you could set down one hundred and fifteen fourteen times and add this. This was done and then he was shown what to do with the half inch. Naturally many members of class said they multiplied to get it because it was an easier way. The multiplication was done on the blackboard, too. Perhaps this child was mature enough to see this method of multiplying; if so, he made a step forward in his learning process.

If a child gives all of his attention to what he is reading, he must either get pleasure from reading a story or else enjoy locating a certain piece of information which he feels the need or desire for. During a Discussion Period, as has already been stated, children's interests in and need for subject matter is discovered. Often in a Work Period a child finds that he must

read to get some definite information that will help him in completing a job. Once he feels the desire to read factual material, he will read thoughtfully and usually will retain what he reads. A thorough reader must understand and interpret what he reads. He must read with eager attention.

During Discussion Periods and Work Periods a teacher has many opportunities to influence the language habits of the children. She has to see that each pupil speaks with sufficient clearness and force to enable all members of the class to understand him. While clearness and force in speaking are generally thought to be of first consideration, correctness in English is quite important. The person guiding a discussion can do much to correct speech errors. She may wait until a child is through speaking and then point out his error and have him correct it.

Children usually enjoy keeping a record of the outstanding class events. They can do better writing when they are having experiences about which they can write. Many of these experiences come through activities engaged in during either the Work Period or the Discussion Period.

Throughout this paper it has been pointed out that practice in the school subjects is effective and important for the child when his problem shows him what he really needs to know. In this situation he actually learns reading, arithmetic, and language as well as facts in the field of social studies.

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## NEW FACILITIES FOR EDUCATIONAL BROADCASTING

THE Federal Communications Commission has just announced the establishment of "a class of high frequency broadcast stations to be licensed to organized non-profit educational agencies for the purpose of transmitting educational programs directed to specific schools in the system for use in connection with the regu-